Agricultural Lands Stewardship

Agricultural Lands Stewardship broadly means conserving natural resources and protecting the environment using private farms and ranches that are in production. Agricultural lands stewardship also protects open space and the traditional characteristics of rural communities. Moreover, it helps landowners maintain their business rather than selling land due to pressure from urban development. In this strategy section of the Water Plan, "Agricultural Lands Stewardship" means farm and ranch landowners – the steward's of the state's agricultural lands – producing public "environmental goods" in conjunction with the food and fiber they have historically provided while keeping land in private ownership.

Agricultural Lands Stewardship is focused on agricultural land as defined by the California Land Conservation (Williamson) Act, which limits this type of land use to cropped and grazed lands. Other resource-based land uses, such as forestry and mining, are addressed by the Watershed Resources Management Strategy.

Background

Agricultural land management can be viewed on different scales. It can mean the management of a particular parcel, the overall management of multiple parcels in one landowner's possession, or the integrated management of agricultural lands regionally or statewide. For the purposes of statewide water planning, agricultural land management concerns management of irrigated agricultural lands and

Examples of Stewardship Practices

Wetland Restoration - Wetland acreage improves water quality by filtering out pollution and sediments. It also serves as a flood control mechanism by slowing the flow of water. Healthy wetlands are indispensable for recharging underground aquifers and providing specific wildlife habitat.

Shallow-Water Wildlife Areas - Shallow water areas developed to provide habitat and water for wildlife. Temporary rice field habitat also provides resting and feeding grounds for waterfowl and shorebirds and related terrestrial species. Rice field flooding speeds the decomposition of rice straw, reduces air pollution, helps control crop disease, improves soil fertility and helps with the decomposition of agricultural chemicals.

Windbreaks – Rows of trees or shrubs along field boundaries helps with soil erosion control, soil moisture conservation, crop protection, livestock shelter, wildlife habitat, drainage water reduction down-slope, and carbon sequestration.

Irrigation Tail Water Recovery – Collection, storage and transportation facilities to capture and reuse irrigation runoff (tail) water that benefits water conservation and off-

contrasts land retirement (here defined as the cessation of irrigation) with an approach, termed "Agricultural Lands Stewardship," which manages productive agricultural lands for multiple benefits, including water management improvements.

The goal of agricultural lands stewardship is to implement a strategy for sustainable agricultural practices and economic return. These private grazing lands and farmlands are part of the watershed and can be managed for floodplain functions, water management strategies for urban runoff, ecosystem and wildlife habitats, storage, conveyance and conjunctive use. There are many ways that agricultural lands can be managed, and in some cases, temporary or permanent land retirement is chosen. For example, temporary retirement or land fallowing is a drought or water banking strategy which provides financial compensation to those landowners participating in temporary water reallocations. Agricultural lands stewardship also protects open space and the traditional characteristics of rural communities. Moreover, it helps landowners maintain their lands and avoid conversion to urban development.

Stewardship Practices cont'd.

Filter Strips, Grassed Waterways, Contour Buffer Strips - Purpose of these practices is to reduce erosion and provide water quality protection with some wildlife benefits depending on management.

Conservation Tillage – Increases infiltration and soil water conservation, reduces erosion and water runoff, sequesters carbon, improves soil ecosystem and habitat quality.

Noxious Weed – [need data]

Riparian Buffers - Areas of trees, shrubs, and grasses located next to streams or drains that filters runoff by trapping sediments, nutrients, and pesticides. Riparian buffers also provide wildlife habitat.

Livestock Access - Restricts or controls livestock access to surface waters to reduce sediment and nutrient non-point source pollution.

As an integral component of regional integrated resource strategies, including watershed planning and implementation, Agricultural Lands Stewardship can utilize best management practices to protect the health of environmentally sensitive lands, increase water quality, and provide water for wetland protection and restoration, including riparian reforestation and management projects. Two examples are conservation tillage and cover crops, both of which provide off season habitat for wildlife.

Although the Agricultural Lands Stewardship concept evolved as an option to land retirement, the two are not mutually exclusive. In some areas, permanent land retirement can address poor of soil quality and drainage problems. Alternative uses for these lands include grazing, dry land farming for saline tolerant crops or wildlife refuges. Therefore, land retirement (cessation of irrigated crops) may be an Agricultural Lands Stewardship practice depending on site-specific conditions, and landowner and community interest.

Current Agricultural Lands Stewardship Initiatives

Agricultural lands stewardship is not a new concept; under various names, it has been practiced and encouraged by the United States Department of Agriculture (USDA) through the Natural Resource Conservation Service (NRCS) and other entities for many years. It is a strategy increasingly considered by governmental and nongovernmental organizations for protecting natural resources in a growing belief that governmental acquisition or land retirement programs can only address a small portion of agricultural lands.

Therefore, a range of private and public programs and initiatives already exist which fit the Agricultural Lands Stewardship model (see box). The amount and consistency of funding for these programs varies.

Many public programs provide technical assistance for implementing new strategies from what crops to plant to how to plant, cultivate and irrigate. Other technical assistance includes friendly farming techniques for wildlife and aquatic ecosystems. Additional types of programs are soil, water and habitat conservation planning. These efforts can identify suitable areas for farming and habitat management and may include financial incentives. Urban planning programs can also be used to avoid agricultural land fragmentation and permanent loss of valuable agricultural land due to urban development. And finally, there are programs which limit or cease commercial agricultural use to promote to wetlands and other wildlife sensitive areas, while keeping lands in private ownership and stewardship.

Three examples below describe stewardship strategies including stakeholder recommendations to a conservation planning program, a federal an

Initiatives that Exemplify Agricultural Lands Stewardship Strategy

Proposition 50 Ecosystem Restoration Program's Proposed Working Landscapes Grants. Allocated not less than $20 million dollars "for projects which assist farmers in integrating agricultural activities with ecosystem restoration."

US Natural Resources & Conservation Service's (NRCS) New Conservation Security Program. Offers incentives and rewards to growers who implement resource conservation plans for parts or all of their lands.

CA Department of Water Resources (DWR) Flood Protection Corridor Program. Grants for nonstructural flood management that enhances wildlife habitat and/or protects agricultural uses on private lands.

CA Department of Fish & Games (DFG) Private Lands Management Program. Offers ranchers and farmers an opportunity to increase their profits by improving habitat for wildlife through and

incentives program, and a statutory land retirement program:

The California Bay-Delta Program (CALFED), CALFED's mission is to develop a long term comprehensive plan that will restore the ecological health and improve water management for beneficial uses of the Bay-Delta system.

BDPAC Working Landscapes Approach

The working landscape is defined as an economically and ecologically vital and sustainable landscape where agricultural and other natural resource-based producers generate multiple public benefits while providing for their own, and their communities', economic and social well-being.

The Bay-Delta Public Advisory Committee (BDPAC) is comprised of diverse stakeholder groups and Native American tribes who advise and make recommendations to the CALFED agencies and the Bay-Delta Authority. BDPAC established a Working Landscapes Subcommittee to advise the BDPAC in the formulation of a working lands management approach for Bay-Delta Programs. The Working Landscapes Subcommittee developed an approach and identified funding sources which be allocated to assist farmers in integrating agricultural activities with Ecosystem Restoration Program goals and objectives..

The Working Landscape Subcommittee seeks to provide the BDPAC with creative and practical strategies that: (1) enhance the sustainability of California agriculture; and (2) provide for participation of local communities, landowners and managers; while, (3) significantly contributing to the fulfillment of and in accordance with the Bay-Delta Program Record of Decision to restore ecological health and improve water management for beneficial use of the Bay-Delta system while minimizing impacts to agriculture.

The Farm Security and Rural Investment Act of 2002- The reauthorized national Farm Bill 2002 provides several new and traditional agricultural conservation programs that exemplify an agricultural lands stewardship strategy to conservation. All programs are voluntary and include financial incentives and rewards for the installation of conservation practices, technical assistance, and set-aside payments, the latter including both temporary and permanent set-asides for various purposes. Proposition 50, the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002, provides that not less than $20 million is "allocated for projects that assist farmers in integrating agricultural activities with ecosystem restoration." (Water Code section 79550(e)). These funds could be used as "matching funds" with the Farm Bill, thus leveraging state money with federal resources. These programs place strong emphasis on watershed and floodplain protection, water conservation and water quality, habitat enhancement, agricultural land protection and soil erosion control.

Central Valley Project Improvement Act Land Retirement Program – One of the provisions of the 1992 Central Valley Project Improvement Act authorized purchase from willing sellers, of agricultural land and associated water rights and other property interests which receive Central Valley Project (CVP) water. All lands selected for retirement will likely be located south of the Sacramento-San Joaquin Delta, in locations where drainage conditions and water quality are poor. The program is expected to retire a total of about 100,000 acres of irrigated farmland.

The U.S. Bureau of Reclamation (Reclamation), in partnership with the U.S. Fish and Wildlife Service and the U.S. Bureau of Land Management are the responsible Federal agencies for implementing the CVPIA Land Retirement Program. These agencies initiated the Land Retirement Demonstration Project to address concerns about the scope and degree of potential impacts of retirement on wildlife, drainage volume reduction, socio-economics, and overall cumulative effects of changing irrigated lands to non-irrigated use.

Potential Benefits

Regional integrated resource planning - Regional integrated resource planning for environmentally friendly, socially acceptable and cost-effective strategies can benefit from agricultural lands stewardship strategies. This synergistic approach can address multiple water and resource objectives to produce numerous benefits, such as water use efficiency projects stretching limited water supplies, reducing loads of contaminants, sustaining the agricultural economy and improving aquatic habitat.

Examples of Agricultural lands Benefits: tbpDWR

- Yolo By-pass
- Consumnes
- Sutter
- others

Watershed management strategies – Watershed management is one ecosystem-based vehicle for carrying out the Agricultural Lands Stewardship strategy. A watershed approach helps provide for integrated assessment and coordinated activities where the efforts of single landowners may not be effective – for example, managing polluted runoff or protecting a riparian corridor. However, watershed management efforts may not always take an Agricultural Lands Stewardship approach. For example, some watershed projects may focus on only one resource objective, such as fuel-load management. In this example, a watershed management project becomes a component of an Agricultural Lands Stewardship strategy. What they have in common, though, is an emphasis on cooperation among landowners and government agencies, private land stewardship, integration of goals and actions, the involvement of multiple public and private landowners, both public and private, and the achievement of multiple resource benefits. Such strategies for agricultural and grazing uses include water quality improvement by not discharging drainage to a surface water body and avoiding pollutants entering groundwater; Growers

may establish riparian corridors, filter strips, grassed waterways or contour buffers between agricultural fields and grazing lands to filter runoff into streams or water bodies.

Another potential Agricultural lands stewardship benefit is its cost effective ways of providing diversified and resilient water portfolios with less risk to water uses. For example, by using best management practices that include restored natural resource functions, the ground water can be recharged.

Growth Management - Agricultural Lands Stewardship can be part of a regional strategy of growth management and integrated resource management planning. Agricultural lands provide public benefits for floodplain management, scenic open space, wildlife habitat and defined boundaries to urban growth. It provides the rural counterpart to urban efforts to encourage more water efficient development patterns of land use. Fragmentation of agricultural lands by development can decrease their productivity and harm the ecosystem. To ensure that the productive farmlands, with these added social values, will not be lost to inappropriate urban development, landowners should be compensated for decisions that affect their ability to use their land.

Temporary land fallowing - Land fallowing (temporary cessation of irrigation of farmlands) from time to time is part of an agricultural lands stewardship strategy. Fallowing is similar to crop idling or crop shifting or other water use efficiency measures where water is made available by reducing consumptive use. Thus fallowing is part of a flexible system reoperation linked to many other water management strategies. It may be an economic benefit for the landowner as well as the farming community depending on the use of the money paid for this temporary fallowing. Payments to farmers could provide supplement or make up lost income as the result of temporary fallowing that can be used on farm-related investments, purchases and debt repayment. Other farmers may benefit by having use of some of the "saved" water. Urban or environmental users might benefit from this potential alternative water supply during severe water short years to avoid economic disruption or ecological

Palo Verde Irrigation District Land Fallowing Program Details: Program length: 35 years

- Estimated annual water supply: 25,000 to 111,000 acre-feet* based on 2.3 to 3.5 acre-feet per year for each retired acre
- Estimated program cost to Metropolitan: between $153 and $206 per acre-foot depending on amount of water developed
- Maximum amount of farmland taken out of production in any year: 29 percent or 26,500 acres
- Total farmland in Palo Verde Valley: 91,400 acres
- Payments a farmer will receive for each acre set aside: a one-time payment of $3,170 for signing up and $550 annually in 2002
- Amount of money Metropolitan will invest in local community improvement programs: $6 million
- Amount budgeted for program environmental documentation and other preliminary activities: $500,000

disruption.

Additionally funds may be invested for local community improvement programs. For instance, Palo Verde Irrigation District Land management, Crop Rotation and Water Supply Program is expected to have an estimated annual water supply of 25 to 111 TAF for Metropolitan Water District. Avoided costs of water supply projects are a benefit of land fallowing to urban water users. Fallowed lands may be cultivated in subsequent years.

Land Retirement - Permanent land retirement (permanent cessation of irrigation) may be considered for farmlands with drainage problems related to soils that are not suited for irrigation. These retired lands provide opportunities to allocate water to other agricultural lands or other beneficial uses. Permanently retired lands may be managed as dry land farms or upland habitat depending on the goals and terms of the retirement. Some retired land is converted to urban development. Avoided costs of new water supply should also be considered in the costs and benefit analysis of land retirement.

The risk of selenium exposure to fish and wildlife is reduced when irrigation on land in the drainage problem areas is permanently "retired". This reduction in drainage water will reduce the volume that needs management by other methods and can provide "regional" benefits, such as the reduction of downslope pollution. Although drainage reduction can be achieved through other agricultural lands stewardship strategies although permanent retirement of lands creates an opportunity to establish upland or other habitat for wildlife.

Integrated On-farm Drainage Management - Integrated On-farm Drainage Management (IFDM) is an approach that protects and enhances farmland, wildlife and water resources in drainage problem areas. This approach to the management of agricultural lands affected by saline water and perched water tables has primarily been used on the west side of the San Joaquin Valley. It offers an alternative to retirement of agricultural lands.

The IFDM system manages irrigation water on salt-sensitive high value crops and reuses subsurface drainage and tail water on increasingly salt-tolerant crops. Biological filters, drainage and tail water systems, crop management and salt harvesting, in an evaporation system, improves water use efficiency, provides for the use of concentrated drainage water, and eliminates the disposal of agricultural drainage water. The merit of land retirement depends on site-specific conditions, desires of individual land owners, and desires of the larger community.

Potential Costs

Current California Investment

[to be provided].

Agricultural Lands Stewardship is promoted as a cost-effective way to sustain our agricultural land base while accomplishing complementary objectives, such as resource and water quality protection. Three dilemmas exist for determining potential costs: 1) What are the direct costs for supporting stewardship programs? 2) What are the common cost measurements for a wide spectrum of environmental values? 3) What current level of investment in California agricultural lands stewardship is needed to incorporate future costs?

Developing working lands costs components is similar to estimating costs of managing lands to avoid environmental impacts such as air and water pollution, or to provide wildlife habitat or secure food and fiber production. Agricultural lands stewardship is a way of doing business and its value as a management strategy should be part of an economic model to measure the economic basis of healthy communities.

Agricultural lands stewardship contributes to the avoided costs associated with urban land use. Not only are there cost savings by avoiding expansion of infrastructure, but there avoided costs for flood damage reduction measures and urban runoff.

The annual cost of managing the lands to avoid environmental impacts have not been quantified accurately. Additional costs may include program development, administration, and mitigation of local and regional socio-economic impacts.

Despite interest in land retirement programs for addressing environmental objectives, relatively little comprehensive analysis has been completed on the cost-effectiveness of the permanent land retirement programs. In a study of the potential benefits of land retirement for addressing the drainage problem, Stroh (1991) compares the costs of meeting drainage goals through land retirement to costs for four drainage management schemes: treatment, evaporation, dilution, and ground-water pumping. Findings suggest that land retirement can be a cost-effective solution to meeting a drainage objective, but only under a limited set of conditions (such as high selenium in soils which makes drainage solutions expensive).

The costs of the federal WRP, CRP and Grasslands Reserve conservation programs offer landowners' financial incentives in the form of rental payments for each acre set-aside for water quality and wildlife benefits. It is estimated that California agricultural lands owners may participate in working lands programs if rents reflected local land values which are $100 to $200 per acre. A new Farm Bill Conservation Security is intended to pay the landowner an annual payment for conservation benefits identified in a conservation plan all or parts of the agricultural operation to address all or some of the identified resource problems. Annual payments are estimated for each landowner to range up to $45,000 per year.

Major Issues Facing a Agricultural lands stewardship

Agricultural lands stewardship is an emerging concept that combines conservation and ecosystem restoration goals with sustainable agricultural practices. It is also a private lands management incentive program. Like any new idea or concept, there are major issues of program awareness, state and local policies, funding and stakeholder acceptance. There are perceived problems about mixing economic endeavors with environmental goals and economic markets. Without an increased focus on agricultural lands stewardship that demonstrates to the public its real benefits, comprehensive regional integrated resource planning and management will be more difficult to implement.

1. There are concerns of landowners about environmental programs that help growers improve habitat that can attract rare, threatened and endangered species which create species' taking issues. Thus some landowners are reluctant to be involved with government agencies, even those that may provide assistance to help compliance with real regulatory requirements. For instance, water quality programs for channel soil erosion management include vegetation that may become habitat. Maintenance of the channel may be subject to environmental regulation. Others are concerned that land retirement may have effects on neighboring agricultural lands and productivity including introducing new wildlife species, weeds, pests, illegal dumping of refuse; disposition of water and water rights issues; and altering physical resources such as soils, groundwater, surface waters.

2. There are a lack of scientific economic, social and environmental studies and monitoring of agricultural lands stewardship to evaluate its merits for ecosystem restoration, water quality, and agricultural economics for large and small agricultural operations. There are conflicting reports about the compatibility or incompatibility of agricultural lands stewardship and ecosystem restoration, in part because the management to assure compatibility must be tailored to local circumstances and then monitored and assessed. A lack of accepted protocols and measurements for results may be another factor for a lack of agreement on the benefits of agricultural lands management.

3. Impediments to documenting environmental results is one of the biggest challenges for implementing stewardship programs. Some landowner question how they can adequately maintain their own privacy, and yet still satisfy the public need for transparency and certainty, when they participate in voluntary programs designed to meet regulatory goals and standards. In addition, there is landowner confusion regarding what type of "assurances" can be provided. For example, although many landowners request "safe harbor" type assurances for voluntary local programs, Federal Endangered Species Act (FESA) assurances can only be granted by the US Fish 7 Wildlife Service and the National Marine Fisheries Service. And in order to determine what type of species must be covered and possible protective measures which may be

required, surveys are necessary to determine what species are present, etc. This only increases landowner concerns that they will be subject to increased restrictions if the presence of endangered species is verified on their property.

4. Institutional regulations and programs are a complex maze and sometimes in conflict, agricultural landowners may be discouraged when developing a stewardship program that is crosscutting and encompassing water and soil conservation with ecosystems restoration, floodplain and wetlands management, water quality and land use planning. The regulations may seem intrusive to the private landowner but essential for those responsible for environmental protection and restoration programs.

5. A common landowner perspective is that the economic return from stewardship, even with governmental resources, often is less than the return from other options for land use, especially when urban development is an option. Urban land uses often make it all the more difficult for remaining farms in the area to operate.

6. Some landowners doubt that stewardship and its cousin, voluntary participation, will succeed in their goal of avoiding potential regulatory action and maintaining landowner privacy when required to provide adequate assurances to resource managers. These concerns and confusion and marginal experience with implementing and monitoring environmental functions at the farm level may limit participation by landowners.

7. California may receive more funding for some programs than other states, but has traditionally received proportionally less funding for USDA Farm Bill's conservation provisions overall relative to its agricultural standing, the value of the threatened resources and the population served. Part of the reason for this inequity has been the relative lack of presence on the part of the state in matching the kinds of programs offered by USDA.

8. Without regional cooperation for regional issues, private landowners implementing Agricultural Lands Stewardship may be frustrated in their management goals by adjacent operations or watershed activity that do not contribute to better management for environmental functions and values. These values include protecting and reestablishing riparian corridors or water quality within a watershed.

9. Land retirement reports do not agree about the extent, if any, of the loss of agricultural productivity, loss of revenue to the local communities, loss of a way of life, and regional and statewide socio-economic effects. There may be additional maintenance costs to mitigate existing or avoid physical environmental impacts. Water transfers, and specific soil and crop management may be required if the lands continue to be farmed without irrigation. Land retirement may result in water transfer for urban use out of the area.

There are concerns whether land retirement may have an adverse effect on local tax base, community businesses and farm related jobs locally and regionally. And there is a heightened sensitivity when land retirement is proposed in areas where the communities provide labor and other services that inherently have high percentage of low income and disadvantaged groups. Some have suggested that if significant amount of land is retired it may also have a statewide influence on the tax bases, economies, and food production and security. On the other hand, others have provided information and data that suggest larger, external forces may be the primary influence on these negative trends in agriculture.

10. Agricultural Lands Stewardship program could benefit from overall state policy goals aimed at promoting agricultural land preservation opportunities. However, there are two major tensions in formulating such a policy: First, is the tension between state and local control. In general, land use is a local planning issue subject to local regulation. Statewide planning goals or restrictions may be seen as an intrusion on sovereign local powers. Second, is the tension between private goals and public commitments. For example, many landowners prefer programs such as the Williamson Act because these are temporary land use restrictions which a landowner can ultimately "opt out' of if he or she later decides to sell his or her land to development and the asking price justifies the cancellation penalty. As a result, many landowners are wary of the economic opportunities they may lose by committing to permanent restrictions. This hurts statewide Agricultural Lands Stewardship goals and policies if the public feels that public investment in temporary benefits is an illusory gain.

Recommendations to facilitate a working lands strategy to water management

The following recommendations can help facilitate an agricultural lands stewardship strategy:

1. Common Ground - The State should collaborate with rural and agricultural organizations to provide private landowners access to educational resources through appropriate public and nongovernmental programs that explain and demonstrate the benefits of agricultural lands stewardship and ecosystem restoration.

- Agricultural lands stewardship programs will be only as successful as the landowners who participate in them. Programs can be more effective in protecting a watershed or ecosystem's environmental quality if they ensure that landowners are aware of the impact on the broader watershed or ecosystem.
- Demonstrate that stewardship programs can help landowners be good stewards without compromising landowner rights.
- The program should emphasize that it is voluntary, flexible, and incentive-based strategy.

- Provide "success" stories to resource managers and environmental organization to demonstrate that private stewardship can achieve desired environmental benefits.
- Provide economic information regarding the advantages and disadvantages of land stewardship to compare with other investment choices.

2. Technical Assistance – Identify appropriate State agency to coordinate, implement and provide staff support for landowners participating in multiple environmental goals and local conservation initiatives such as the Department of Conservation's Watershed Coordinator, Natural Resource Conservation Service programs, Resource Conservation Districts cooperative program, and other programs. The agency should identify opportunities to assist landowners in participating in resource management programs to further institutional coordination, apply for grant funding and facilitate multiple stakeholder planning and implementation.

- Ensure consistent, dependable and adequate funding for stewardship assistance, especially the USDA Natural Resources Conservation Service, the agency that has traditionally provided this kind of assistance.
- Assist landowners in endangered species issues.
- Document environmental results with accepted standards, criteria and protocol while respecting sensitivity of private land ownership.

"Soft Path" - The water soft path is characterized by wide use of diverse, often decentralized systems. In contrast, the water "hard path" relies almost exclusively on centralized infrastructure and decision making: dams and reservoirs, etc. Although the soft path to meet water needs may also include infrastructure, it also relies on treatment, sanitation, and runoff management systems, urban rainwater and stormwater harvesting, aquifer storage recovery systems, other nontraditional ("green infrastructure").

3. Help Landowners Implement Agricultural Lands Stewardship Plans – Greater state participation would direct federal funds toward landowner participation and technical assistance to meet the required agreements and permits for an agricultural lands stewardship management program.

- Incentive-based agricultural lands stewardship can complement regulatory requirements by supporting landowners' efforts to be good stewards of natural resources beyond that set by regulation. Most other states are partners with USDA in providing financial and technical assistance for voluntary private landowner-lead conservation measures.

4. Guidance for Management – The State should provide leadership in overall state policy for environmental goals including lands suitable for "soft path" water and environmental management [see box] as well as sustainable development.

- The state should identify "soft path" functions as part of the implementation strategies for the environmental goals of sustainable infrastructure.
- The state should identify the "soft path functions" of Agricultural Lands Stewardship.
- The state should provide investment information comparing soft path costs and avoided costs of not having to build expensive capital improvement projects that require increasing maintenance. This information should be the basis for state infrastructure investment including compensation to private land stewards.
- The state should coordinate with regional and local governments for "soft path" infrastructure investment providing incentives to direct urban development toward existing or enhanced infrastructure and avoid agricultural lands which provide soft path functions.
- Support regional and local investments for soft path functions, including the use of transfer of development financing programs.

5. Land Fallowing and Retirement -

An evaluation of the socio-economics effects of agricultural lands stewardship and land retirement and fallowing programs should be undertaken including a comprehensive assessment of:

- regional changes in agricultural production inputs, farm income (including income received from land and water payments),
- habitat restoration (including financial on-farm investments and increased recreational opportunities), and
- annual maintenance expenditures.

Sources [to be provided]

- Use the policy evaluation to as guidance for maintaining the economic stability of local community continuity, including potential reductions in jobs, tax base, community and commercial production.

6. Scientific Studies - Increase scientific studies to assess the environmental, ecosystem restoration and agricultural benefits of agricultural lands stewardship programs. Continue research on sustainable agriculturally-based economies. Continue monitoring and assessing local and cumulative positive and negative effects related to

habitat restoration, temporary fallowing and permanent land retirement including improved air and water quality and associated costs.